In the Claims:

This listing of claims replaces all prior versions.

1. (Previously presented) A semiconductor device comprising:

a gate electrode and a gate insulating layer produced on a part of the surface of a substrate of a first semiconductor material having a given melting point, and surrounded by an insulating spacer in a plane parallel to the surface of the substrate, the gate insulating layer being disposed between the substrate and the gate electrode, and

a source region and a drain region situated under the surface of the substrate at the level of two opposite sides of the gate electrode, respectively, each region containing electrical carriers of the same given type, with respective first concentrations, and each region comprising a portion of a second semiconductor material disposed on the substrate below the level of the gate insulating layer in a direction perpendicular to the surface of the substrate, each portion of second material extending at least partially between the substrate and the spacer, substantially as far as a limit coming in line, in said perpendicular direction, with one side of the gate electrode, said portions of second material being doped with doping elements in order to create electrical carriers of said given type with second concentrations less than said first concentrations, and said portions of second material having a melting point lower than the melting point of the first material.

2. (Original) A device as claimed in claim 1, in which said portions of second material have an ability to absorb a light radiation greater than the absorption ability of the first material for the same light radiation.

3. (Original) A device as claimed in claim 1, in which the first material is based on silicon and the second material is based on germanium or based on an alloy of silicon and germanium.

4. (Previously presented) A device as claimed in claim 1, also comprising two

encapsulation portions of said second material, disposed respectively over the portions of second material, on a side opposite to the substrate.

5. (Previously presented) A device as claimed in claim 4, in which each encapsulation portion extends between the spacer and the portion of second material above which said encapsulation portion is disposed, substantially as far as a limit situated in line, in said direction perpendicular to the surface of the substrate, with the side of the gate electrode corresponding to said second encapsulation portion.

6. (Previously presented) A device as claimed in claim 1, characterized in that said device is an MOS transistor.

7. (Previously presented) A method of manufacturing a semiconductor device, comprising the following steps:

a) a gate insulating layer is formed on a part of a surface of a substrate of a first semiconductor material having a given melting point;

b) a gate electrode is formed on top of the gate insulating layer;

c) an insulating spacer is formed, disposed around the gate insulating layer and the gate electrode, parallel to the surface of the substrate;

d) two surface films of the first material are removed respectively in two lateral parts of the surface of the substrate situated on two opposite sides of the surface part of the substrate carrying the gate insulating layer and the gate electrode, each lateral part extending between the substrate and the spacer substantially as far as a limit coming in line with one of the opposite sides of the gate electrode, in a direction perpendicular to the surface of the substrate;

e) a source region and a drain region are formed, each region being situated below the surface of the substrate at a level of said two lateral parts of the surface of the substrate, respectively, each region containing electrical carriers of the same given type with respective first concentrations;

f) there is formed on the substrate, in each lateral part, a portion of a second semiconductor material substantially as far as a limit coming in line, in said perpendicular

direction, with the opposite side of the gate electrode corresponding to said lateral part, said portions of second material containing doping elements in order to create electrical carriers of the given type, and having a melting point lower than the melting point of the first material;

g) the portions of second material are heated to a temperature intermediate between the respective melting points of the first and second materials, so that the portions of second material contain electrical carriers with second concentrations lower than said first concentrations.

8. (Previously presented) A method as claimed in claim 7, according to which, during step g), said portions of second material are heated using a laser beam.

9. (Previously presented) A method as claimed in claim 7, according to which, after step f), encapsulation portions are deposited respectively on top of said portions of second material, on a side opposite to the substrate.

10. (Previously presented) A method as claimed in claim 7, according to which step e) is performed before step d).

11. (Previously presented) A method as claimed in claim 7, wherein steps a) through g) are performed successively.